

## COLLAPSIBLE STORAGE BINS

### BACKGROUND OF THE INVENTION

#### A. Field of the Invention

5           The invention relates to the field of laundry hampers and household storage bins. More specifically, the invention relates to laundry hampers and storage bins that can be collapsed for convenient storage, shipment and merchandising.

#### B. Description of Related Art

Laundry hampers and household storage bins are commonly used in the  
10   home to collect and store household items and laundry. Such hampers and bins disclosed in the prior art include two basic types: free-standing containers and support frame/bag designs. The free-standing containers typically are rectangular or oval in shape and are made of a hard, non-flexible material, such as plastic or wicker. With their rigid construction, these containers take up the same amount of  
15   space whether full or empty of laundry and, because they are not collapsible, they are not easily moved from one place to another. Because, heretofore, rigid wall hampers have not been collapsible, such hampers have been expensive to ship. Because of their bulky size, they required a large volume of merchandising space. Additionally, because of the large volume of merchandising space required,  
20   merchandisers were unwilling to keep large quantities of such products on shelves, thereby making sales of such products even more inefficient because items were frequently not available for purchase on shelves.

In response to these portability and merchandising restrictions, attempts at laundry hampers have been made that generally comprise pivoting support structures with fabric bags attached thereto have been used. One example is U.S. Patent No. 5,667,066 assigned to Seymour Housewares Corporation. However, 5 these types of hampers are flimsy and are generally undesirable to consumers, who still prefer rigid laundry hampers.

Additionally, structures have been employed that utilize panels made from a continuous frame member having a coilable steel wire sewn into a seam of a fabric panel along the periphery thereof. One example of such a structure is U.S. 10 Patent No. 6,073,643. However, these hampers also suffer from the fact that they are flimsy and light.

Finally, other types of hampers are shown in U.S. Patent Nos. 6,588,620 and 6,637,938. However, these types of hampers still utilize flimsy fabric sidewalls to contain the dirty laundry. Therefore, there is a need in the art for a rigid sided 15 laundry hamper that is easily collapsible for transportation and merchandising purposes.

## SUMMARY OF THE INVENTION

In a first aspect, the present invention comprises a rigid-walled collapsible 20 bin having first, second, third and fourth rigid walls attached to form an open-ended rectangular box. The first and third rigid walls are opposite one another and the second and fourth rigid walls are opposite one another. The open ends define a top end and a bottom end of the box. A flexible material is attached over the

bottom end of the open-ended rectangular box. The first and third rigid walls are inwardly bendable generally along a fold line such that, when bent, the second and fourth walls approach one another. A removable stiffness panel has outer dimensions substantially equal to the inner dimensions of the rectangular box when  
5 the stiffness panel is placed in a plane parallel to the plane of the bottom end of the rectangular box.

In a second aspect, the present invention comprises a rigid-walled collapsible bin comprising first, second, third and fourth rigid walls attached to form an open-ended rectangular box. The first and third rigid walls are opposite  
10 one another and the second and fourth rigid walls are opposite one another. The open ends define a top end and a bottom end of the box. The first and third rigid walls are bendable along a generally vertical fold line such that, when bent, the second and fourth walls approach one another. A flexible material covers the bottom end of the open-ended rectangular box. The material comprises a first and  
15 a second closure. The first closure is diagonally situated from a point generally adjacent the fold line of the first wall to a point generally adjacent the attachment of the second wall with the third wall. The second closure is diagonally situated from a point generally adjacent the fold line of the third wall to a point generally adjacent the attachment of the fourth wall with the third wall.

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#### BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a top perspective view of a laundry hamper according to an embodiment of the present invention;

Fig. 2 is a top view of a laundry hamper with lid removed according to an embodiment of the present invention;

Fig. 3 is a top section view taken along lines A-A of Fig. 1 with the thicknesses of the sides exaggerated;

5        Fig. 4 is a top perspective view of a laundry hamper having a lid according to an embodiment of the present invention;;

Fig. 5 is a top perspective view of a partially collapsed laundry hamper according to an embodiment of the present invention;

Fig. 6 is a bottom perspective view of a partially collapsed laundry hamper  
10        according to an embodiment of the present invention;

Fig. 7 is a bottom view of a fully collapsed laundry hamper according to an embodiment of the present invention;

Fig. 8 is a plan view of a stiffness panel according to an embodiment of the present invention;

15        Fig. 9 is a top perspective view of a laundry hamper according to a second embodiment of the present invention;

Fig. 10 is bottom perspective view of a laundry hamper according to a second embodiment of the present invention;

Fig. 11 is a bottom perspective view of a partially collapsed hamper  
20        according to a second embodiment of the present invention;

Fig. 12 is a bottom view of a fully collapsed hamper according to a second embodiment of the present invention;

Fig. 13 is a top perspective view of a hamper of the second embodiment of the present invention having a lid thereon;

Fig. 14 is a front perspective view of a storage bin according to a third embodiment of the present invention;

5        Fig. 15 is a front perspective view of a partially collapsed storage bin according to a third embodiment of the present invention;

Fig. 16 is a top view of a fully collapsed storage bin according to a third embodiment of the present invention;

Fig. 17 is a top perspective view of a storage bin according to a fourth  
10        embodiment of the present invention;

Fig. 18 is a top plan view of a stiffness panel according to a fourth embodiment of the present invention;

Fig. 19 is a top view of a partially collapsed storage bin according to a fourth embodiment of the present invention; and

15        Fig. 20 is a top view of a fully collapsed storage bin according to a fourth embodiment of the present invention.

#### DESCRIPTION OF THE PREFERRED EMBODIMENT

While this invention is susceptible of embodiment in many different forms,  
20        there is shown in the drawings and will herein be described in detail preferred embodiments of the invention with the understanding that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the broad aspect of the invention to the embodiments illustrated.

Referring to Figs. 1 through 4, there is shown a rigid-walled, collapsible laundry hamper 10. For purposes of the present document, the term rigid or rigid wall refers to both rigid and semi-rigid walls, and such term is intended to exclude only walls that are completely flaccid and flexible, such as clothes walls. The laundry hamper 10 generally comprises a front sidewall 12, a rear sidewall 14, a left sidewall 16 and a right sidewall 18. The sidewalls 12-18 each generally comprise a cardboard or extruded polymer sheet 20 covered by a fabric sheet 22 on an interior face and by a wicker weave material 24 on an exterior face. For the purposes of this patent application, the term "fabric" refers to a cloth produced especially by knitting, weaving, or felting fibers of any type. The sheets 20 of the right and left sidewalls 16, 18 are preferably divided vertically into two sheets such that the right and left sidewalls 16, 18 can each be folded in half. Rather than dividing the sheet vertically, the sheets could be creased or otherwise segmented to allow the otherwise rigid sheet 20 to fold upon the crease or segmentation line. Whether divided, creased or otherwise segmented, the imaginary line upon which the right and left sidewalls 16, 18 are folded shall be referred to as the "fold line" 17, 19 of each sidewall 16,18.

The wicker weave 24 may be made from either woven wooden strips or woven polymer strips. Handles 30 made from rope are provided on the front sidewall 12 and the rear sidewall 14 by providing holes in the front and rear sidewalls 12, 14 and knotting the rope on either end after it has been fed through the hole. Metal reinforcements 32 may be attached to the front and rear sidewalls 12, 14 about the holes to prevent the sidewalls 12, 14 from tearing. Additionally, a

lid 34 with an overlapping attachment portion 36 may optionally be provided on the hamper 10. The lid 34 and overlapping attachment portion 36 are preferably constructed in the same manner as the sidewalls with a fabric layer, a cardboard or polymer sheet for the lid 34 and the overlapping attachment portion 36 and a wicker layer. As above, the lid 34 could employ a single sheet the has been creased or segmented to create the lid 34 and overlapping attachment portion 36 or be made from two cardboard or polymer sheets. The hamper 10, if equipped with a lid, also includes a fastener 38, 38', such as hook and loop material, to maintain the lid 34 in a closed position. While the above configuration contemplates a lid that is permanently attached to the hamper, the lid could employ a second overlapping attachment portion and be removably attached to the hamper with hook and loop material.

Referring to Fig. 6, the laundry hamper 10 also comprises a flexible fabric bottom 40 attached to all four sidewalls 12-18 and is shown partially collapsed. Referring to Figs. 5 and 6, the hamper 10 is collapsed by folding the right and left sidewalls 16, 18 inwardly upon themselves which, in turn, brings the front and rear sidewalls 12, 14 nearer to one another. The flexible bottom 40 folds during collapse of the hamper 10 in a non-predetermined manner. As the hamper 10 is collapsed, the front and rear sidewalls 12, 14 eventually become generally adjacent one another, as shown in Fig. 7, and the hamper is completely collapsed and generally flat. As the front and rear sidewalls 12, 14 are separated, the hamper 10 is expanded back to the form of Fig. 1. To enable the hamper 10 to maintain the shape of Fig. 1 so that it may be effectively used for holding laundry, a square

stiffness panel 42 (Fig. 8) is placed within the hamper 10 against the flexible fabric bottom, as seen in Fig. 2. The stiffness panel 42 is preferably made from cardboard or an extruded polymer sheet and covered by a fabric material on both sidewalls. While the stiffness panel 42 is within the hamper 10 and against the fabric bottom 40, the right and left sidewalls 16, 18 are prevented from folding and the hamper 10 is thus not permitted to collapse. The stiffness panel 42 also includes a loop 44 attached to the stiffness panel 42. By gripping the loop 44 when the stiffness panel 42 is inside the hamper 10, a user may easily grasp the stiffness panel 42 to remove it from the hamper 10 in order to collapse the hamper 10 once again.

Fig. 5 shows an alternative handle arrangement wherein the handles 30 are made from a strip of fabric and riveted to the front and rear sidewalls 12, 14.

Referring to Fig. 9, a second embodiment of the present invention comprises a laundry hamper 100 comprising a first bin 102 and a second bin 104. The hamper 100 comprises a front sidewall 106, a rear sidewall 108, a right sidewall 110 and a left sidewall 112. The sidewalls 106-112 preferably each comprise a cardboard or extruded polymer sheet covered by a wicker weave material on an exterior face and a fabric material on an interior face, as with the hamper 10. The polymer sheet of the front sidewall 106 is vertically divided into two equal sized halves 114, 116 along a fold line 118 such that the front sidewall 106 is capable of being folded in half upon itself. The rear sidewall 108 is vertically divided into two equal sized halves 120, 122 along the intersection with the fold line 118 such that the rear sidewall 108 is capable of being folded in half upon itself



also. Rather than dividing the sheet vertically, the sheets could be creased or otherwise segmented to allow the otherwise rigid sheet to fold upon a crease or segmentation line. A divider panel 124 is attached to the interior face of the front and rear sidewalls 106, 108 on or near the fold line 118.

5 Referring to the bottom perspective view of Fig. 10, the hamper 100 also comprises a flexible bottom portion 126. The flexible bottom portion 126 is made from a sheet of fabric and is attached to the four sidewalls 106-112. The bottom portion 126 further comprises two closures 128, 130. The closures 128, 130 depicted are zippers, although other closures, such as snaps, buttons, hook and  
10 loop material, clasps or any other closure, can be used. The closures 128, 130 are arranged such that the bottom portion 126 can be divided diagonally along a length of the closure 128 from a point X near a center of the rear sidewall 108 to a point Y near the attachment of the right sidewall 110 to the front sidewall 106 and also diagonally along a length of the closure 130 from the point X near the center of the  
15 rear sidewall 108 to a point Z near the attachment of the left sidewall 112 to the front sidewall 106.

Referring to the bottom perspective view of Fig. 11, when the zippers that comprise the closures 128, 130 are not attached, the hamper 100 may be collapsed by urging the right and left sidewalls 110, 112 together. When doing so, the  
20 rectangular bins 102, 104 become shaped like an oblique-angled parallelogram, rather than the rectangular shape as in Fig. 10, with the unattached closures 128, 130 allowing for the increased distance between the corners A, B and the increased distance between the corners B, C of the parallelograms formed by the bins 102,

104. Referring to Fig. 12, when the right and left sidewalls 110, 112 are brought completely together, the hamper 100 is collapsed entirely and requires only a fraction of the volume required when it is in the configuration of Fig. 9.

To return the hamper 100 to the configuration of Fig. 9, the right and left  
5 sidewalls 110, 112 are separated from the position of Fig. 12 to the position of Fig. 9. Next, closures 128, 130 are attached by, in the case of the embodiment of Figs. 9-13, zipping the zippers. After the closures 128, 130 have been attached, the flexible bottom portion 126 and closures 128, 130 prevent the right and left  
sidewalls 110, 112 from approaching one another and allowing the bins 102, 104  
10 to form the non-rectangular shape required for the right and left sidewalls 110, 112 to approach one another.

Referring to Fig. 13, a lid 132 with a pair of overlapping attachment  
portions 134 are provided. The lid 132 is attached to the hamper 100 by an  
attachment 136, 136', such as hook and loop material, fastened to the hamper and  
15 the overlapping attachment portions 134.

While it is described above that the hamper of Figs. 1-8 is a single bin  
hamper and the hamper of Figs. 9-13 is a double bin hamper, it will be readily  
appreciated by one of ordinary skill in the art that the hamper of Figs. 1-8 could be  
a double or more bin hamper by merely altering its dimensions and using a flexible  
20 fabric divider and that the hamper of Figs. 9-13 could be implemented without a  
divider or with more than two dividers.

Referring to Figs. 14-16, a storage bin 200 is shown. The storage bin is  
similar in every respect to the laundry hamper of Figs. 1-8 except that the sidewall

walls are shorter. The storage bin 200 may be used to store various items and may more easily fit in tight spaces when filled. The storage bin 200 may or may not have a lid attached, as with the hamper of Figs. 1-8.

Referring to Figs. 17-19, an alternative storage bin 300 is shown. This storage bin 300 has a depth dimension D that is much larger than its width dimension W. It comprises a front rigid sidewall 302, a rear rigid sidewall 304, a right rigid sidewall 306 and a left rigid sidewall 308. The sidewalls 302-308 are preferably a cloth covered polymer extruded sheet or cardboard panel. Attached to all four sidewalls 302-308 is a flexible fabric bottom 310. The right and left sidewalls 306, 308 further comprise four equally sized panels 312. Alternatively, the panels 312 may be attached to one another but defined by three equally spaced score lines. The panels 312 are pivotally attached by virtue of the panels being covered and attached by the cloth covering. At the attachment of each of the panels 312 are fold lines 318. A stiffness panel 314 is placed against the fabric bottom 310 and prevents the storage bin 300 from collapsing, as described above with respect to the laundry hamper of Figs. 1-8. The stiffness panel 314 also includes a loop 316 attached to the stiffness panel 314. The bin 300 further includes handles 320 attached to the sidewalls 302, 304.

The stiffness panel 316 may be removed from the bin 300 in order to collapse the bin 300. As seen in Fig. 19, once the stiffness panel 314 is removed, the front and rear sidewalls 302, 304 may be urged toward one another thereby causing the right and left sidewalls 306, 308 to bend along the fold lines 318, as shown in Fig. 19, until the bin 300 is fully collapsed as shown in Fig. 20. When the

bin 300 is fully collapsed, it can be seen that the panels 312 from the right and left sidewalls 306, 308 overlap one another by a length L.

In view of the above, it will be seen that several advantages of the present invention have been achieved and other advantageous results have been obtained.